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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,853	08/17/2006	Takeshi Kihara	295159US8X PCT	3549
22850	7590	11/16/2009	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			AKRAM, IMRAN	
			ART UNIT	PAPER NUMBER
			1795	
			NOTIFICATION DATE	DELIVERY MODE
			11/16/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/589,853	Applicant(s) KIHARA ET AL.	
	Examiner IMRAN AKRAM	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 12-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 30 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7/29/09 have been fully considered but they are not persuasive. The Kawamura '784 reference still anticipates the claims as amended. Arguments presented to the Kawamura '859 reference are moot as the rejection has been modified to be an obviousness-type rejection due to the amendment.
2. Applicant asserts on page 11 of the arguments that the Kawamura '784 reference (Kawamura II) discloses the catalyst layer to be supported or provided on the wall surface. While this may be true, the assertion ignores another configuration disclosed in Kawamura '784: that the catalyst is instead supported on a porous layer (paragraph 42). In this manner, the catalyst reads on the amended claim: namely, that the catalyst is supported independent of direct wall support. Indirect wall support—viz-a-viz the wall, a porous support layer, and then the catalyst—qualifies as being supported independently of direct wall support.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 7-11, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura (US 2004/0025784 A1).

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5. Regarding claim 1, Kawamura '784 discloses a joined body including a first substrate **11** and a second substrate **14** that are joined together, a flow path **12** formed by a microchannel portion formed on a joining surface of at least one of said substrates, and a catalyst carrying member disposed in said flow path and including a catalyst **13**, said catalyst is supported independent of direct support of wall surfaces of said microchannel portion that define said flow path (paragraph 42).
6. Regarding claim 2, Kawamura '784 discloses that said catalyst carrying member comprises a metal base body, a metal oxide film covering said metal base body, and said catalyst supported on said metal oxide film (paragraph 42).
7. Regarding claims 3 and 4, these claims are read as product-by-process claims. As the product is anticipated, the process by which the product is made is not given patentable weight.
8. Regarding claim 7, Kawamura '784 discloses that said catalyst carrying member comprises an electric heater **17**, a metal oxide film **48** covering said electric heater (see figure 14), and a catalyst supported on said metal oxide film (paragraph 42).
9. Regarding claim 8, this claim is read as a product-by-process claim. As the product is anticipated, the process by which the product is made is not given patentable weight.
10. Regarding claim 9, Kawamura '784 discloses that said catalyst carrying member comprises an electric heater **17**, a metal film **48** covering said electric heater, a metal oxide film **13** covering said metal film (see figure 14), and a catalyst supported on said metal oxide film (paragraph 42).

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11. Regarding claims 10 and 11, these claims are read as product-by-process claims. As the product is anticipated, the process by which the product is made is not given patentable weight.

12. Regarding claim 30, Kawamura '784 discloses that the metal base body is circular in section (see figure 14).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (US 2004/0148859 A1) in view of Kawamura '784.

14. Regarding claim 1, Kawamura '859 discloses a joined body **100** having a pair of substrates **11**, **17** joined together, a flow path **13** formed by a microchannel portion formed on a joining surface of at least one of said substrates, and a catalyst **15** disposed in said flow path (see figure 2). Kawamura '859 does not disclose the catalyst to be formed on a support layer, but rather directly on the channel wall. Kawamura '784—in an invention for a plate reactor with catalytic reaction channels—discloses the use of a catalyst support layer on which the catalyst is embedded that is of different material than the catalyst (paragraph 42). It would have been obvious to one having ordinary skill in the art at the time of invention to use the catalyst support layer of Kawamura '784 for the catalyst layer of Kawamura '859 so as to embed the catalyst on a material different than that of the reaction channel walls.

15. Regarding claim 5, Kawamura '859 discloses that said joined body is provided with a heater **50** at least one of said substrates.

16. Regarding claim 6, Kawamura '859 discloses that said heater is provided on said substrate via an insulating layer **25**.

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17. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura '784 as applied to claim 2 above, and further in view of Bowe (US 2003/0105172 A1).

18. Kawamura '784 does not disclose the metal body to be wavelike in shape. Bowe—in an invention for a plate reactor with catalytic flow paths—discloses the use of corrugated shapes for the catalysts in the reaction grooves (paragraph 40 and figure 4). It would have been obvious to one having ordinary skill in the art at the time of invention to shape the metal body of Kawamura '784 as wavelike as in Bowe to increase surface area of the reaction. See MPEP 2144.04 IV B.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IMRAN AKRAM whose telephone number is (571)270-3241. The examiner can normally be reached on 10-7 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Imran Akram/

| Examiner, Art Unit 1795

/Jennifer K. Michener/

Supervisory Patent Examiner, Art Unit 1795